Project Design Phase-II Technology Stack (Architecture & Stack)

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| Date | 24 JUNE 2025 |
| Team ID | LTVIP2025TMID52282 |
| Project Name | Cosmetic Insights : Navigating Cosmetics Trends and Consumer Insights with Tableau |
| Maximum Marks | 4 Marks |

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



3. Technology Stack

Below is the technology stack used in the iRevolution Tableau project.

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| --- | --- | --- | --- |
| Sno | Components | Description | technology |
| 1 | User Interface | How user interacts with the analytics platform (Web UI, Mobile App, etc.) | HTML, CSS, JavaScript / Angular JS / React JS |
| 2 | Application Logic-1 | Logic for filtering and comparing cosmetic products | Python / Java |
| 3 | Application Logic-2 | Text analysis for extracting product claims and ingredients | IBM Watson NLU / Python NLP libraries |
| 4 | Application Logic-3 | Chatbot interface for product recommendations | IBM Watson Assistant / Google Dialogflow |
| 5 | Database | Storage for product, sales, and customer interaction data | MySQL, MongoDB (NoSQL) |
| 6 | Cloud Database | Scalable cloud-based data storage | IBM DB2, IBM Cloudant, Firebase |
| 7 | File Storage | Storage for product images and marketing assets | IBM Cloud Object Storage / AWS S3 / Local Filesystem |
| 8 | External API-1 | Integration for real-time skin type/weather-based product suggestions | IBM Weather API / SkincareMatch API |
| 9 | External API-2 | Integration with product barcode scanners or e-commerce platforms | Amazon Product API / Flipkart Open API |
| 10 | Machine Learning Model | Product recommendation engine and trend prediction | Classification Models, Recommendation Systems (Scikit-Learn) |
| 11 | Infrastructure | Deployment on local servers or cloud infrastructure | Local Server / IBM Cloud / Kubernetes / Cloud Foundry |

Table-2: Application Characteristics:

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| --- | --- | --- | --- |
| S.No | Category | Description | Technology Used |
| 1 | Open-Source Frameworks | List the open-source frameworks used in the dashboard and backend | React JS, Flask, Scikit-Learn, Pandas |
| 2 | Security Implementations | Security/access control mechanisms implemented | SHA-256, OAuth 2.0, IAM Roles, OWASP Principles |
| 3 | Scalable Architecture | Design for scalable growth of products, categories, and user base | Microservices, REST APIs, Kubernetes |
| 4 | Availability | Measures to ensure continuous uptime and access | Load Balancer, Multi-Zone Deployment, Failover |
| 5 | Performance | Optimization for quick data load and response times | Redis Cache, CDN (Cloudflare), Indexed Queries |